AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1 – 11. (Cancelled)

12. (Currently Amended) ~~The optical fiber communication system in accordance with claim 2 or claim 3,~~ An optical fiber communication system comprising:

silica fiber laid throughout a city as a gain medium for Raman amplification to amplify a signal light;

a pumping light source that emits a forward pumping light with a plurality of wavelengths that co-propagates through the silica fiber in the same direction as the signal light and pumps the signal light; and

a multiplexer disposed between the silica fiber and the pumping light source that multiplexes the signal light and the pumping light,

wherein the multiplexer is provided with a means to multiplex the signal light input thereto having a wavelength longer than the zero-dispersion wavelength of the silica fiber and the pumping light emitted from the pumping light source,

the pumping light source is equipped with a means to emit forward pumping light, with the longest wavelength of the pumping light being shorter than the shortest wavelength of the signal light so as to have a frequency difference of 13.7 to 17.9 THz,

the silica fiber is a dispersion-shifted fiber, and the signal light comprises a plurality of wavelengths in the L band, and

~~wherein~~ the optical fiber communication system has an erbium-doped fiber amplifier having:

an erbium-doped fiber gain block provided with erbium-doped fiber as a gain medium;

a gain equalization optical filter disposed before or after the erbium-doped fiber gain block;

a population inversion detection circuit that measures a population inversion amount in the erbium-doped fiber; and

a population inversion adjustment circuit that controls the erbium-doped fiber gain block so that the population inversion amount measured by the population inversion detection circuit is a prescribed value.

13. (Original) The optical fiber communication system in accordance with claim 12, wherein the excited-state filling factor N_2 of the erbium-doped fiber is less than 38%.

14 – 19. (Cancelled)

20. (New) An optical fiber communication system comprising:

silica fiber laid throughout a city as a gain medium for Raman amplification to amplify a signal light;

a pumping light source that emits a forward pumping light with a plurality of wavelengths that co-propagates through the silica fiber in the same direction as the signal light and pumps the signal light; and

a multiplexer disposed between the silica fiber and the pumping light source that multiplexes the signal light and the pumping light,

wherein the multiplexer is provided with a means to multiplex the signal light input thereto having a wavelength longer than the zero-dispersion wavelength of the silica fiber and the pumping light emitted from the pumping light source,

the pumping light source is equipped with a means to emit forward pumping light, with the longest wavelength of the pumping light being shorter than the shortest wavelength of the signal light so as to have a frequency difference of 13.7 to 17.9 THz,

the silica fiber is a non-zero dispersion-shifted fiber, and the signal light comprises a plurality of wavelengths in the C band, and

the optical fiber communication system has an erbium-doped fiber amplifier having:

an erbium-doped fiber gain block provided with erbium-doped fiber as a gain medium;

a gain equalization optical filter disposed before or after the erbium-doped fiber gain block;

a population inversion detection circuit that measures a population inversion amount in the erbium-doped fiber; and

a population inversion adjustment circuit that controls the erbium-doped fiber gain block so that the population inversion amount measured by the population inversion detection circuit is a prescribed value.

21. (New) The optical fiber communication system in accordance with claim 20, wherein the excited-state filling factor N_2 of the erbium-doped fiber is less than 38%.